

THAT WHICH IS CLAIMED:

1. A high throughput dispensing apparatus adapted to dispense a profiling sample, said apparatus comprising:

5 a plurality of vessels;

a plate defining a plurality of receptacles corresponding to, and configured to receive, the plurality of vessels, the plurality of receptacles being arranged according to a coordinate system; and

10 a dispensing unit for dispensing the profiling sample and having a robotic device in communication therewith, the robotic device being configured according to the coordinate system so as to be registered with the plate, the robotic device being further configured to operably engage the plate so as to dispense a portion of the profiling sample into a selected vessel.

15 2. An apparatus according to Claim 1 wherein the plate is configured to define ninety-six receptacles.

3. An apparatus according to Claim 1 wherein the plate is configured to define three hundred and eighty-four receptacles.

20 4. An apparatus according to Claim 1 further comprising an indicia operably engaged with at least one of the plate and the selected vessel, the indicia being configured so as to indicate information corresponding to the selected vessel.

25 5. An apparatus according to Claim 4 further comprising a computer device operably engaged with the indicia, the computer device being configured to store, in a database, the information indicated by the indicia and corresponding to the selected vessel.

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6. An apparatus according to Claim 1 further comprising a computer device in communication with at least one of the dispensing unit and the robotic device corresponding to the dispensing unit.

5 7. An apparatus according to Claim 6 wherein the computer device is further configured with a predetermined range criteria for the weight of the portion of the sample dispensed into the selected vessel.

10 8. An apparatus according to Claim 7 wherein the computer device is further configured to direct at least one of the dispensing unit and the robotic device corresponding to the dispensing unit to dispense the weight of the portion of the sample into the selected vessel such that the weight is within the predetermined range criteria.

15 9. An apparatus according to Claim 1 wherein the dispensing unit and the robotic device in communication therewith are further configured to selectively dispense a portion of the profiling sample into each of at least one selected vessel of the plurality of vessels.

20 10. An apparatus according to Claim 1 wherein the dispensing unit and the robotic device in communication therewith are further configured to, selectively and in a predetermined order, dispense a portion of the profiling sample into each of at least one selected vessel of the plurality of vessels.

25 11. An apparatus according to Claim 1 wherein the dispensing unit and the robotic device in communication therewith are further configured to dispense a portion of the profiling sample into each of the plurality of vessels.

30 12. An apparatus according to Claim 1 wherein the plurality of vessels further comprises a control vessel, and wherein the dispensing unit and the robotic device in communication therewith are further configured to not dispense a portion of the profiling sample into the control vessel.

13. An apparatus according to Claim 12 wherein the dispensing unit is further configured to dispense a control sample into the control vessel, the control sample being adapted for comparison to the profiling sample.

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14. An apparatus according to Claim 1 wherein the dispensing unit is further adapted to dispense the profiling sample comprising a powder.

15. An apparatus according to Claim 1 wherein the dispensing unit is further 10 adapted to dispense the profiling sample comprising a homogenous free-flowing powder.

16. A high throughput weight measurement apparatus adapted to prepare a profiling sample, said apparatus comprising:

15 a plurality of vessels;  
a plate defining a plurality of receptacles corresponding to, and configured to receive, the plurality of vessels, the plurality of receptacles being arranged according to a coordinate system; and  
a weighing device having a robotic device in communication therewith, the 20 robotic device being configured according to the coordinate system so as to be registered with the plate, the robotic device being further configured to operably engage the selected vessel such that, before a portion of a profiling sample is dispensed into the selected vessel, the robotic device is capable of removing the selected vessel from the corresponding receptacle of the plate, transferring the selected vessel into operable engagement with the weighing device so as to allow the weighing device to perform a tare measurement of the selected vessel, and then replacing the selected vessel 25 in the corresponding receptacle, and such that, after the portion of the profiling sample is dispensed into the selected vessel, the robotic device is capable of removing the selected vessel from the corresponding receptacle of the plate, transferring the selected vessel into operable engagement with the weighing device so as to allow the weighing device to perform a gross 30 measurement of the selected vessel.

measurement of the selected vessel and the portion of the profiling sample, and replacing the selected vessel in the corresponding receptacle, a weight of the portion of the profiling sample thereafter being determinable by deducting the tare measurement from the gross measurement of the selected vessel.

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17. An apparatus according to Claim 16 wherein the plate is configured to define ninety-six receptacles.

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18. An apparatus according to Claim 16 wherein the plate is configured to define three hundred and eighty-four receptacles.

19. An apparatus according to Claim 16 further comprising an indicia operably engaged with at least one of the plate and the selected vessel, the indicia being configured so as to indicate information corresponding to the selected vessel.

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20. An apparatus according to Claim 19 further comprising a computer device operably engaged with the indicia, the computer device being configured to store, in a database, the information indicated by the indicia and corresponding to the selected vessel

21. An apparatus according to Claim 16 further comprising a computer device in communication with at least one of the weighing device and the robotic device corresponding to the weighing device.

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22. An apparatus according to Claim 21 wherein the computer device is configured to receive the tare measurement and the gross measurement from the weighing device and to compute the weight of the portion of the profiling sample in the selected vessel by determining the difference between the measurements.

23. An apparatus according to Claim 22 wherein the computer device is further configured with a predetermined range criteria for the weight of the portion of the profiling sample in the selected vessel.

5 24. An apparatus according to Claim 16 wherein the weighing device and the robotic device in communication therewith are further configured to perform a tare measurement of each of the plurality of vessels.

10 25. An apparatus according to Claim 16 wherein the weighing device and the robotic device in communication therewith are further configured to perform a tare measurement of each of at least one selected vessel of the plurality of vessels.

15 26. A high throughput method for preparing a profiling sample in at least one selected vessel of a plurality of vessels, the plurality of vessels being received in a plurality of corresponding receptacles defined by a plate and arranged according to a coordinate system, said method comprising:

20 performing an automated tare measurement of the selected vessel independently of the plate with a weighing device;  
dispensing a portion of the profiling sample into the selected vessel with a dispensing device; and  
25 performing a gross measurement of the selected vessel, having the portion of the profiling sample therein, independently of the plate and with the weighing device, a weight of the portion of the profiling sample thereby being determinable as the difference between the gross measurement and the tare measurement of the selected vessel.

30 27. A method according to Claim 26 further comprising updating an indicia with at least one of the tare measurement, the gross measurement, and the weight of the portion of the profiling sample, wherein the indicia is operably engaged with at least one of the plate and the selected vessel and is configured so as to indicate information corresponding to the selected vessel.

28. A method according to Claim 27 further comprising storing the information indicated by the indicia and corresponding to the selected vessel in a database implemented on a computer device.

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29. A method according to Claim 26 wherein performing a tare measurement further comprises:

removing the selected vessel from the corresponding receptacle of the plate with a robotic device;

10 transferring the selected vessel with the robotic device into operable engagement with the weighing device so as to allow the weighing device to perform a tare measurement of the selected vessel; and

replacing the selected vessel in the corresponding receptacle of the plate with the robotic device.

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30. A method according to Claim 26 wherein performing a gross measurement further comprises:

removing the selected vessel from the corresponding receptacle of the plate with a robotic device;

20 transferring the selected vessel with the robotic device into operable engagement with the weighing device so as to allow the weighing device to perform a gross measurement of the selected vessel and the portion of the profiling sample disposed therein; and

25 replacing the selected vessel in the corresponding receptacle of the plate with the robotic device.

31. A method according to Claim 26 wherein dispensing a portion of the profiling sample further comprises dispensing a portion of the profiling sample comprising a powder.

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32. A method according to Claim 26 wherein dispensing a portion of the profiling sample further comprises dispensing a portion of the profiling sample comprising a homogenous free-flowing powder.

5 33. A method according to Claim 26 further comprising computing the weight of the portion of the profiling sample disposed in the selected vessel by deducting the tare measurement from the gross measurement.

10 34. A method according to Claim 26 further comprising providing an alert if the computed weight of the portion of the profiling sample disposed in the selected vessel is outside a predetermined range criteria.

15 35. A method according to Claim 26 wherein performing a tare measurement further comprises performing a tare measurement of each of the plurality of vessels.

36. A method according to Claim 26 wherein performing a tare measurement further comprises performing a tare measurement of each of at least one selected vessel of the plurality of vessels.

20 37. A method according to Claim 26 wherein dispensing a portion of the profiling sample further comprises selectively dispensing a portion of the profiling sample into each of at least one selected vessel of the plurality of vessels.

25 38. A method according to Claim 26 wherein dispensing a portion of the profiling sample further comprises dispensing, selectively and in a predetermined order, a portion of the profiling sample into each of at least one selected vessel of the plurality of vessels.

30 39. A method according to Claim 26 wherein dispensing a portion of the profiling sample further comprises dispensing a portion of the profiling sample into each of the plurality of vessels.

40. A method according to Claim 26 wherein the plurality of vessels further comprises a control vessel and dispensing a portion of the profiling sample further comprises not dispensing a portion of the profiling sample into the control vessel.

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41. A method according to Claim 40 further comprising dispensing a control sample into the control vessel between the tare measurement and the gross measurement thereof.

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42. A high throughput dispensing apparatus adapted to dispense a profiling sample, said apparatus comprising:

a plurality of vessels;

a means for defining a plurality of receptacles corresponding to, and configured to receive, the plurality of vessels, the plurality of receptacles being arranged according to a coordinate system; and

a profile sample dispensing means having a robotic device in communication therewith, the robotic device being configured according to the coordinate system so as to be registered with the plate, the robotic device being further configured to operably engage the plate so as to dispense a portion of the profiling sample into a selected vessel.

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43. An apparatus according to Claim 42 wherein the means for defining a plurality of receptacles is a plate configured to a plurality of receptacles.

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44. An apparatus according to Claim 42 wherein the means for defining a plurality of receptacles is a plate further comprising an indicia operably engaged with at least one of the plate and the selected vessel, the indicia being configured so as to indicate information corresponding to the selected vessel.

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45. An apparatus according to Claim 44 further comprising a computer device operably engaged with the indicia, the computer device being configured to store, in a

database, the information indicated by the indicia and corresponding to the selected vessel.

46. An apparatus according to Claim 42 wherein the profiling sample  
5 dispensing means is a dispensing unit further comprising a computer device in  
communication with at least one of the dispensing unit and the robotic device  
corresponding to the dispensing unit.

47. An apparatus according to Claim 46 wherein the computer device is  
10 further configured with a predetermined range criteria for the weight of the portion of the  
sample dispensed into the selected vessel.

48. An apparatus according to Claim 47 wherein the computer device is  
further configured to direct at least one of the dispensing unit and the robotic device  
15 corresponding to the dispensing unit to dispense the weight of the portion of the sample  
into the selected vessel such that the weight is within the predetermined range criteria.

49. An apparatus according to Claim 42 wherein the profiling sample  
dispensing means and the robotic device in communication therewith are further  
20 configured to, selectively and in a predetermined order, dispense a portion of the  
profiling sample into each of at least one selected vessel of the plurality of vessels.

50. An apparatus according to Claim 42 wherein the profiling sample  
dispensing means and the robotic device in communication therewith are further  
25 configured to dispense a portion of the profiling sample into each of the plurality of  
vessels.

51. An apparatus according to Claim 42 wherein the plurality of vessels  
further comprises a control vessel, and wherein the profiling sample dispensing means  
30 and the robotic device in communication therewith are further configured to not dispense  
a portion of the profiling sample into the control vessel.

52. An apparatus according to Claim 51 wherein the profiling sample dispensing means is further configured to dispense a control sample into the control vessel, the control sample being adapted for comparison to the profiling sample.

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53. An apparatus according to Claim 42 wherein the profiling sample dispensing means is further adapted to dispense the profiling sample comprising a powder.

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54. An apparatus according to Claim 42 wherein the profiling sample dispensing means is further adapted to dispense the profiling sample comprising a homogenous free-flowing powder.

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55. A high throughput system for preparing a profiling sample, said system comprising:

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a profiling sample;  
a plurality of vessels;  
a plate defining a plurality of receptacles corresponding to, and configured to receive, the plurality of vessels, the plurality of receptacles being arranged according to a coordinate system;

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a dispensing unit for dispensing the profiling sample and having a robotic device in communication therewith, the robotic device being configured according to the coordinate system so as to be registered with the plate, the robotic device being further configured to operably engage the plate so as to dispense a portion of the profiling sample into a selected vessel; and  
a weighing device having a robotic device in communication therewith, the robotic device being configured according to the coordinate system so as to be registered with the plate, the robotic device being further configured to operably engage the selected vessel such that, before the portion of the profiling sample is dispensed, the robotic device is capable of removing the selected vessel from the corresponding receptacle of the plate,

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transferring the selected vessel into operable engagement with the weighing device so as to allow the weighing device to perform a tare measurement of the selected vessel, and then replacing the selected vessel in the corresponding receptacle, and such that, after the portion of the profiling sample is dispensed, the robotic device is capable of removing the selected vessel from the corresponding receptacle of the plate, transferring the selected vessel into operable engagement with the weighing device so as to allow the weighing device to perform a gross measurement of the selected vessel and the portion of the profiling sample, and replacing the selected vessel in the corresponding receptacle, a weight of the portion of the profiling sample thereafter being determinable by deducting the tare measurement from the gross measurement of the selected vessel.

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